

IN THE CLAIMS

Please amend the claims as follows:

1 1 (Currently Amended). A microphotonic device comprising:

2 a deformable membrane structure that can experience strain using a plurality of
3 thin-film actuators, said strain is continuous in the strain direction, said deformable
4 membrane provides mechanical support for said microphotonic device while providing
5 high dielectric contrast with air underneath said deformable membrane; and

6 a waveguide element formed on said deformable membrane structure so that
7 when said deformable membrane structure is strained, said waveguide element is tuned to
8 a selective amount.

1 2 (Previously Presented). The microphotonic device of claim 1, wherein said deformable
2 membrane structure comprises a sub-micron SiO₂ layer.

1 3 (Original). The microphotonic device of claim 1, wherein said waveguide element
2 comprises a microring resonator.

1 4 (Original). The microphotonic device of claim 1, wherein said waveguide element
2 comprises a microracetrack resonator.

1 5 (Original). The microphotonic device of claim 1, wherein said waveguide element
2 comprises a 1-dimensional photonic crystal.

1 6 (Original). The microphotonic device of claim 1, wherein said waveguide element
2 comprises a 2-dimensional photonic crystal.

1 7 (Original). The microphotonic device of claim 5, wherein said 1-dimensional photonic
2 crystal comprises holes.

1 8 (Original). The microphotonic device of claim 7, wherein said selective amount
2 comprises approximately 1%.

1 9 (Original). The microphotonic device of claim 3, wherein said selective amount
2 comprises 0.2%.

1 10 (Previously Presented). The microphotonic device of claim 1 further comprising at
2 least one piezoelectric actuator that is coupled to said deformable membrane so as to
3 produce said strain.

1 11 (Currently Amended). A method of forming a microphotonic device comprising:
2 providing forming a deformable membrane structure that can experience strain
3 using a plurality of thin-film actuators, said strain is continuous in the strain direction,
4 said deformable membrane provides mechanical support for said microphotonic device
5 while providing high dielectric contrast with air underneath said deformable membrane;
6 and

7 forming a waveguide element on said deformable membrane structure so that
8 when said deformable membrane structure is strained said waveguide element is tuned to
9 a selective amount.

1 12 (Previously Presented). The method of claim 11, wherein said deformable membrane
2 structure comprises a sub-micron SiO₂ layer.

1 13 (Original). The method of claim 11, wherein said waveguide element comprises a
2 microring resonator.

1 14 (Original). The method of claim 11, wherein said waveguide element comprises a
2 microracetrack resonator.

1 15 (Original). The method of claim 11, wherein said waveguide element comprises a 1-
2 dimensional photonic crystal.

1 16 (Original). The method of claim 11, wherein said waveguide element comprises a 2-
2 dimensional photonic crystal.

1 17 (Original). The method of claim 15, wherein said 1-dimensional photonic crystal
2 comprises holes.

1 18 (Original). The method of claim 17, wherein said selective amount comprises
2 approximately 1%.

1 19 (Original). The method of claim 13, wherein said selective amount comprises 0.2%.

1 20 (Previously Presented). The method of claim 11 further comprising providing at least
2 one piezoelectric actuator that is coupled to said deformable membrane so as to produce
3 said strain.